

III. SUMMARY

Census returns from the 210,959 manufacturing (and printing and publishing) establishments of the country indicated an aggregate outlay of \$36,683,000,000 for raw and semimanufactured materials (exclusive of fuels) used in these plants in 1929, about 35 per cent of which (\$12,676,000,000) was for raw materials alone. The amount of the difference between the two sums, \$24,007,000,000, represents the volume of transactions between manufacturers (directly or through middlemen), brought about by the decided specialization of industrial plants. The interchange of partly processed materials occurs as follows: Plant A, after converting raw material into a semimanufactured article, may pass the latter on to Plant B, which advances the fabrication another step; Plant C may complete the processing, or it may pass the still incompleated article on to Plant D; and so on. Since generally a separate report is made to the Census Bureau covering the operations of each industrial establishment, the aggregates for "cost of materials, containers, fuel, and purchased electric energy" and for value of products contain considerable amounts of duplication. Thus it is that the gross value of products reported by the Census (\$70,435,000,000) is about 50 per cent greater than the value of finished or "end" products of American manufacture in 1929. The latter or net value is estimated to have been \$47,243,000,000, equivalent to the sum of the costs of raw materials and imported semimanufactures and the "value added by manufacture" (comprising salaries, wages, interest, other expenses except cost of materials, etc., and manufacturing profits).

To arrive at the net-value figure it is necessary to estimate either the cost of the raw materials or that of the semimanufactured materials used. The procedure employed in this study was to calculate the expenditures of manufacturers for raw materials, a task far less laborious and uncertain than that of attempting to list the costs of thousands of semimanufactured materials and parts which were purchased by manufacturers for use in their plants. The increased detail in which manufacturers reported to the Census the materials consumed in 1929 greatly facilitated the project and reduced the necessity for estimating. The raw materials used in industry in that year are listed by kind and cost, for industry groups, in Table 23.

About two-thirds (67.3 per cent) of the cost of the crude materials consumed in manufactures went for those produced by agriculture and animal husbandry. Mines, quarries, and wells supplied more than a quarter (27.6 per cent) of the total and in addition provided coal and natural gas for factory fuel to the amount of four-fifths of a billion dollars. Of the raw materials consumed, 82.6 per cent were of domestic origin; the remainder came from abroad.

The outlay for materials is the largest single item of cost for the average manufacturer, the variation in the percentage of the gross value of output expended for "materials, containers, fuel, and purchased electric energy" ranging for individual industries, however, from as little as 9.8 per cent of the total in the industry engaged in the manufacture of cash registers and calculating machines to 92.5 per cent in the one engaged in the smelting and refining of copper. For all manufacturing industries the combined cost of materials, fuel, etc., was 54.7 per cent of the value of output in 1929 and 57.6 per cent 30 years earlier.

Because of the relative importance of material costs and the demand for high-speed production, any prolonged industrial advance would be likely to bring about marked improvement in the selection, care, and use of materials. Further-

more, the fact that they, like machines, are inanimate and controllable as compared with industrial personnel focuses attention on materials as being excellent subjects for the realization of pronounced economies. The materials organizations in industrial establishments, as a matter of fact, underwent a mild revolution in recent years, as attested by the increased number of concerns in which were to be found perpetual-inventory systems, specialized purchasing officials, salvage departments, material specifications, carefully laid out storerooms, and experimental and testing laboratories.

Economy in the use of industrial materials resulted in a commerce in secondary materials (scrap) sufficiently important to bring large business concerns and several trade associations into the field. Manufacturers reported to the Census the consumption in 1929 of scrap iron and scrap steel valued at more than \$540,000,000. Some few industries consumed chiefly secondary materials.

Scarcity of a given raw material often provides the incentive for the development of rival raw or synthetic materials. The increased manufacture of many different kinds of synthetic plastic products depends upon abundant supplies of relatively inexpensive vegetable fibers. The facility with which science reaches from scarce to more plentiful sources for required materials appears at least to lessen the immediate anxiety concerning the possible depletion of natural resources.

Although all industries use either crude or partly manufactured materials and are, therefore, dependent directly or indirectly upon an adequate supply of raw substances, the raw-material-consuming industries are those which are first and most seriously affected by any change in the nature or amount of crude materials available. In 68 industries, whose combined cost of materials and containers for products amounted to 34 per cent of the aggregate for all the 326 industries, more than half the 1929 cost represented expenditures for raw materials. For this group of industries the raw-material cost equaled about 54 per cent of the gross value of products, while the semimanufactures cost was about 10 per cent. In the remaining 258 industries the expenditures for raw materials amounted to only about 4 per cent of the gross value of output.

With the net value of finished products determined, it becomes possible to distribute it equitably among the several factors which contribute to the making of those products. To illustrate: If the gross value is divided into the wage item for 1929, it appears upon superficial inspection that the wage earner received 16.5 per cent of the f. o. b. factory value of the output; but if the same wage budget is divided by the net value of products the quotient is 24.6 per cent. The proportion for each item, except for materials, which enters into the value of output is thus increased, the differences being accounted for in the reduction of the share for materials, consisting now of only the combined cost of raw materials and imported semimanufactures.

Census data indicate that the total cost of materials and containers for products constituted an increasing proportion of the value of products from 1899 to the period of the World War and a decreasing proportion in the years following. Since in the earlier years the prices of raw materials rose more rapidly than those of manufactured goods, the manufacturers' outlays for raw materials would be likely to consume an increasing proportion of the income from the sale of the products. Price movements in the years following the war were, however, somewhat at variance with the decrease in the proportion which material costs formed of the value of the output. An explanation must, therefore, be sought elsewhere. It is probable that the remarkable advance made in the economical utilization of materials during the postwar decade would account in large part for the relative decline in expenditures for materials. Observation seems to disclose a growing indirectness of manufacture, that is, a moderate tendency for materials to pass

through more and more plants before their processing is completed. While the comparison of available data for the years 1929 and 1904 indicates this trend only indistinctly, it is probable that the movement is concealed in part by conditions which obscure the meaning of the available data.

TABLE 23.—CONSUMPTION OF RAW MATERIALS, IMPORTED SEMIMANUFACTURES, FUELS, AND PURCHASED ELECTRIC ENERGY, BY SOURCE, KIND, AND COST, FOR INDUSTRY GROUPS: 1929

[For explanation of "Net value of products" see headnote to Table 16]

GROUP I.—FOOD AND KINDRED PRODUCTS

Gross value of products.....	\$12, 023, 589, 000
Cost of raw materials and unmanufactured fuels, total....	5, 811, 734, 000
Raw materials:	
<i>a.</i> Domestic.....	5, 154, 509, 000
<i>b.</i> Imported.....	523, 006, 000
Unmanufactured fuels and purchased energy.....	134, 219, 000
Cost of semimanufactured materials and manufactured fuels, total.....	2, 820, 549, 000
Semimanufactured materials:	
<i>a.</i> Domestic.....	2, 314, 704, 000
<i>b.</i> Imported.....	478, 620, 000
Manufactured fuels.....	27, 225, 000
Net value of products.....	9, 681, 660, 000
Per cent of gross value.....	80. 5

RAW MATERIALS OF DOMESTIC ORIGIN

<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Dairy products (milk and cream).....	\$911, 358, 000	Livestock:	
Fruits, vegetables, and nuts.....	305, 823, 000	Cattle.....	\$1, 026, 501, 000
Grains: ¹		Sheep.....	168, 091, 000
Barley.....	22, 317, 000	Swine.....	1, 227, 569, 000
Buckwheat.....	1, 942, 000	Other animals.....	1, 648, 000
Corn.....	174, 302, 000	Poultry and products: ⁴	
Grains, unspecified.....	289, 629, 000	Chickens.....	89, 455, 000
Hops.....	2, 864, 000	Ducks.....	1, 009, 000
Oats.....	32, 268, 000	Turkeys.....	9, 516, 000
Rice.....	34, 900, 000	Other poultry.....	493, 000
Rye.....	9, 586, 000	Eggs.....	67, 285, 000
Wheat.....	685, 129, 000	Sea products (fish, crabs, etc.).....	14, 613, 000
Mineral materials: ²		Sugar materials:	
Sulphur ore.....	94, 000	Beets.....	1 64, 765, 000
Water.....	3 3, 384, 000	Cane.....	10, 468, 000

RAW MATERIALS OF FOREIGN ORIGIN ³

<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Dairy products (milk and cream).....	\$7, 432, 000	Livestock.....	\$23, 848, 000
Fruits, vegetables, and nuts.....	44, 681, 000	Poultry products (eggs).....	124, 000
Grains:		Sea products (fish, etc.).....	16, 706, 000
Hops.....	374, 000	Sugar materials (cane).....	1, 235, 000
Wheat.....	17, 435, 000	Other crude materials:	
Grains, unspecified.....	1, 731, 000	Cocoa.....	53, 205, 000
Gums:		Coffee.....	325, 077, 000
Chicle.....	7, 129, 000	Spice.....	20, 222, 000
Other.....	3, 807, 000		

IMPORTED SEMIMANUFACTURED MATERIALS ⁵

<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Animal oils, edible.....	\$201, 000	Milk, condensed.....	\$1, 391, 000
Casein and lactarine.....	1, 000, 000	Molasses.....	17, 838, 000
Cocoa and chocolate.....	2, 256, 000	Nuts, processed.....	2, 231, 000
Eggs, processed.....	12, 497, 000	Oil, cake, and meal.....	7, 219, 000
Farinaceous preparations.....	5, 064, 000	Sausage casings.....	16, 577, 000
Fodders and feeds.....	12, 215, 000	Sugar.....	370, 000, 000
Gelatin, edible.....	1, 049, 000	Vegetable oils, edible.....	24, 814, 000
Meat extracts.....	1, 133, 000	Vegetable preparations.....	3, 040, 000

For footnotes, see p. 56.

MATERIALS USED IN MANUFACTURES, 1929

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$3,680,000	Coke.....	\$5,412,000
Coal, bituminous.....	46,702,000	Fuel oils.....	11,404,000
Gas, natural.....	8,606,000	Gas, manufactured.....	6,611,000
Purchased energy.....	70,171,000	Gasoline and kerosene.....	648,000
		Other fuels.....	3,151,000

GROUP II.—TEXTILES AND THEIR PRODUCTS

Gross value of products.....	\$9,243,303,000
Cost of raw materials and unmanufactured fuels, total.....	1,687,515,000
Raw materials:	
a. Domestic.....	877,198,000
b. Imported.....	701,143,000
Unmanufactured fuels and purchased energy.....	109,174,000
Cost of semimanufactured materials and manufactured fuels, total.....	3,416,331,000
Semimanufactured materials:	
a. Domestic.....	3,075,454,000
b. Imported.....	328,946,000
Manufactured fuels.....	11,931,000
Net value of products.....	6,583,858,000
Per cent of gross value.....	63.3

RAW MATERIALS OF DOMESTIC ORIGIN

Kind	Cost	Kind	Cost
Raw fibers: ¹		Other crude materials:	
Cotton.....	\$676,566,000	Feathers and down.....	\$2,870,000
Hair, animal.....	15,500,000		
Wool.....	173,935,000		
Other.....	3,327,000		

RAW MATERIALS OF FOREIGN ORIGIN²

Kind	Cost	Kind	Cost
Furs.....	\$12,000,000	Raw fibers—Continued.	
Mineral materials—mercury.....	71,000	Wool.....	\$114,740,000
Raw fibers: ¹		Other.....	43,257,000
Cotton.....	57,333,000	Other crude materials:	
Flax, hemp, and jute.....	16,961,000	Feathers and down.....	3,380,000
Hair, animal.....	4,330,000	Rubber.....	316,000
Silk.....	447,586,000	Vegetable substances.....	1,169,000

IMPORTED SEMIMANUFACTURED MATERIALS³

Kind	Cost	Kind	Cost
Buttons.....	\$2,169,000	Feathers, prepared.....	\$87,000
Casein, etc.....	3,000,000	Haircloth.....	80,000
Cloth, cotton.....	9,059,000	Hat material.....	18,511,000
Dyes.....	13,000,000	Waste, cotton.....	2,604,000
Fabrics:		Wool noils, rags, etc.....	18,933,000
Flax, hemp, etc.....	37,391,000	Yarns:	
Jute.....	91,853,000	Cotton.....	4,597,000
Rayon.....	2,845,000	Coir.....	132,000
Silk.....	38,088,000	Flax, hemp, etc.....	1,704,000
Wool and mohair.....	58,247,000	Rayon.....	22,510,000
Miscellaneous.....	2,708,000	Silk.....	1,368,000

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$5,922,000	Coke.....	\$84,000
Coal, bituminous.....	37,111,000	Fuel oils.....	9,460,000
Gas, natural.....	364,000	Gas, manufactured.....	1,536,000
Purchased energy.....	65,777,000	Gasoline and kerosene.....	218,000
		Other fuels.....	632,000

For footnotes, see p. 56.

GROUP III.—FOREST PRODUCTS

Gross value of products.....	\$3, 591, 765, 000
Cost of raw materials and unmanufactured fuels, total.....	267, 813, 000
Raw materials:	
a. Domestic.....	214, 614, 000
b. Imported.....	21, 980, 000
Unmanufactured fuels and purchased energy.....	31, 219, 000
Cost of semimanufactured materials and manufactured fuels, total.....	1, 318, 370, 000
Semimanufactured materials:	
a. Domestic.....	1, 254, 965, 000
b. Imported.....	58, 814, 000
Manufactured fuels.....	4, 591, 000
Net value of products.....	2, 332, 208, 000
Per cent of gross value.....	64. 9

RAW MATERIALS OF DOMESTIC ORIGIN

Logs:	Kind	Cost
Factory value.....		\$12, 277, 000
Stumpage value.....		193, 325, 000
Turpentine.....		9, 012, 000

RAW MATERIALS OF FOREIGN ORIGIN ¹

	Kind	Cost
Cork, crude.....		\$8, 200, 000
Logs, cabinet wood, etc.....		13, 780, 000

IMPORTED SEMIMANUFACTURED MATERIALS ²

Kind	Cost	Kind	Cost
Cane, reed, etc.....	\$598, 000	Oil, cresote.....	\$10, 878, 000
Miscellaneous wood products.....	260, 000	Sawmill products.....	47, 078, 000

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$736, 000	Coke.....	\$111, 000
Coal, bituminous.....	12, 392, 000	Fuel oils.....	2, 269, 000
Gas, natural.....	522, 000	Gas, manufactured.....	307, 000
Purchased energy.....	17, 569, 000	Gasoline and kerosene.....	978, 000
		Other fuels.....	927, 000

GROUP IV.—PAPER AND ALLIED PRODUCTS

Gross value of products.....	\$1, 892, 251, 000
Cost of raw materials and unmanufactured fuels, total.....	298, 310, 000
Raw materials:	
a. Domestic.....	188, 953, 000
b. Imported.....	34, 226, 000
Unmanufactured fuels and purchased energy.....	75, 131, 000
Cost of semimanufactured material and manufactured fuels, total.....	794, 412, 000
Semimanufactured materials:	
a. Domestic.....	692, 081, 000
b. Imported.....	95, 766, 000
Manufactured fuels.....	6, 565, 000
Net value of products.....	1, 193, 606, 000
Per cent of gross value.....	63. 1

RAW MATERIALS OF DOMESTIC ORIGIN

Mineral materials: ²	Kind	Cost	Kind	Cost
Clay.....		\$2, 670, 000	Pulpwood.....	\$84, 365, 000
Sulphur ore.....		4, 769, 000	Rags.....	17, 718, 000
Paper stock.....		74, 233, 000	Straw.....	5, 198, 000

For footnotes, see p. 56.

MATERIALS USED IN MANUFACTURES, 1929

RAW MATERIALS OF FOREIGN ORIGIN ¹

	Kind	Cost
Mineral materials—clay.....		\$3,000,000
Pulpwood.....		15,694,000
Rags, etc.....		15,532,000

IMPORTED SEMIMANUFACTURED MATERIALS ¹

	Kind	Cost
Wood pulp.....		\$95,767,000

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$5,263,000	Coke.....	\$16,000
Coal, bituminous.....	42,728,000	Fuel oils.....	4,571,000
Gas, natural.....	1,092,000	Gas, manufactured.....	95,000
Purchased energy.....	26,048,000	Gasoline and kerosene.....	30,000
		Other fuels.....	1,852,000

GROUP V.—PRINTING, PUBLISHING, AND ALLIED INDUSTRIES

Gross value of products.....	\$3,170,140,000
Cost of unmanufactured fuels and purchased energy.....	22,147,000
Cost of semimanufactured materials and manufactured fuels, total.....	744,337,000
Semimanufactured materials:	
a. Domestic.....	584,204,000
b. Imported.....	156,545,000
Manufactured fuels.....	3,588,000
Net value of products.....	² 2,412,449,000
Per cent of gross value.....	76.1

IMPORTED SEMIMANUFACTURED MATERIALS ¹

	Kind	Cost
Paper:		
Decalcomania, not printed.....		\$157,000
Standard newsprint.....		156,330,000
Miscellaneous.....		1,068,000

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$807,000	Coke.....	\$55,000
Coal, bituminous.....	2,223,000	Fuel oils.....	955,000
Gas, natural.....	712,000	Gas, manufactured.....	1,795,000
Purchased energy.....	18,405,000	Gasoline and kerosene.....	75,000
		Other fuels.....	709,000

GROUP VI.—CHEMICALS AND ALLIED PRODUCTS

Gross value of products.....	\$3,759,405,000
Cost of raw materials and unmanufactured fuels.....	649,103,000
Raw materials:	
a. Domestic.....	394,431,000
b. Imported.....	170,197,000
Unmanufactured fuels and purchased energy.....	84,475,000
Cost of semimanufactured materials and manufactured fuels.....	1,321,610,000
Materials:	
a. Domestic.....	1,049,937,000
b. Imported.....	256,710,000
Fuels.....	14,963,000
Net value of products.....	2,694,505,000
Per cent of gross value.....	71.7

For footnotes, see p. 56.

RAW MATERIALS OF DOMESTIC ORIGIN

<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Animal materials:		Mineral materials—Continued.	
Fertilizer stock ¹	\$36,615,000	Nonmetallic minerals, unspecified.	\$4,000,000
Glue stock.....	179,000	Phosphate rock.....	12,960,000
Fruits, vegetables, and nuts.....	3,251,000	Pyrites.....	1,280,000
Grains, unspecified.....	14,715,000	Quartzite.....	220,000
Mineral materials: ²		Rock salt and natural brine.....	8,253,000
Abrasives.....	970,000	Silica rock.....	1,334,000
Barite.....	1,850,000	Sulphur ore.....	23,352,000
Bauxite.....	3,131,000	Talc and soapstone.....	1,300,000
Borate.....	1,564,000	Sea products (fish scrap, etc.) ¹	3,300,000
Clay.....	300,000	Seeds, fibers, etc:	
Feldspar.....	75,000	Cottonseed.....	200,000,000
Fluorspar.....	356,000	Cotton linters.....	5,844,000
Gas, natural.....	6,522,000	Flaxseed.....	38,038,000
Gypsum.....	22,000	Vegetable gums.....	260,000
Limestone.....	4,735,000	Wood: ¹	
Magnesite.....	84,000	Pulpwood.....	5,410,000
Manganese.....	575,000	Wood and bark.....	11,611,000
Mercury.....	2,319,000		

RAW MATERIALS OF FOREIGN ORIGIN ³

<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Animal materials:		Forest materials—Continued.	
Bones, hoofs, etc.....	\$2,439,000	Solvents, gums, etc.....	\$33,610,000
Fertilizer materials.....	6,850,000	Tanning and dyeing materials.....	4,207,000
Oil, animal.....	3,174,000	Mineral materials:	
Drugs, herbs, seeds, etc.:.....		Cryolite.....	721,000
Drugs, herbs, etc.....	12,254,000	Fluorspar.....	72,000
Flaxseed.....	60,758,000	Mercury.....	1,206,000
Oil seeds.....	37,451,000	Nonferrous ores.....	4,504,000
Tea leaves.....	254,000	Phosphate rock.....	577,000
Forest materials:		Pyrites.....	1,621,000
Latex.....	260,000	Quartzite.....	230,000

IMPORTED SEMIMANUFACTURED MATERIALS ³

<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Animal products, inedible.....	\$678,000	Oils:	
Casein and lactarene.....	300,000	Essential.....	\$8,873,000
Cellophane in sheets.....	660,000	Fish.....	10,431,000
Chemical materials.....	36,835,000	Vegetable.....	92,270,000
Coal-tar products.....	5,265,000	Perfume materials.....	4,655,000
Dyeing extracts.....	908,000	Pigments.....	4,500,000
Fertilizer materials.....	68,138,000	Talcum.....	903,000
Glue stock, gelatine, etc.....	6,785,000	Tanning extracts.....	4,628,000
Medicinal and pharmaceutical preparations.....	5,768,000	Waxes.....	5,111,000

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Anthracite.....	\$3,410,000	Coke.....	1,507,000
Coal, bituminous.....	37,411,000	Fuel oils.....	\$8,854,000
Gas, natural.....	2,318,000	Gas, manufactured.....	1,091,000
Purchased energy.....	41,336,000	Gasoline and kerosene.....	226,000
		Other fuels.....	3,284,000

GROUP VII.—PRODUCTS OF PETROLEUM AND COAL

Gross value of products.....	\$3,647,748,000
Cost of raw materials and unmanufactured fuels, total.....	2,190,063,000
Raw materials:	
a. Domestic.....	1,809,360,000
b. Imported.....	85,939,000
Unmanufactured fuels and purchased energy.....	294,764,000
Cost of semimanufactured materials and manufactured fuels, total.....	356,776,000
Semimanufactured materials:	
a. Domestic.....	248,315,000
b. Imported.....	108,461,000
Manufactured fuels.....	3,290,972,000
Net value of products.....	90.2
Per cent of gross value.....	

MATERIALS USED IN MANUFACTURES, 1929

RAW MATERIALS OF DOMESTIC ORIGIN ¹

Kind	Cost	Kind	Cost
Mineral materials: ²		Mineral materials—Continued.	
Coal, anthracite.....	\$477,000	Gas, natural.....	\$3,563,000
Coal, bituminous.....	98,072,000	Gasoline, natural.....	135,066,000
Coal slack.....	850,000	Petroleum, crude.....	1,571,332,000

RAW MATERIALS OF FOREIGN ORIGIN

Kind	Cost
Petroleum, crude.....	\$85,039,000

FUELS AND PURCHASED ENERGY ³

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$2,560,000	Coke.....	\$14,751,000
Coal, bituminous.....	9 278,430,000	Fuel oils ¹¹	39,242,000
Gas, natural.....	10 1,817,000	Gas, manufactured ¹²	51,278,000
Purchased energy.....	11,958,000	Gasoline and kerosene.....	71,000
		Other fuels.....	3,118,000

GROUP VIII.—RUBBER PRODUCTS

Gross value of products.....	\$1,117,460,000
Cost of raw materials and unmanufactured fuels, total.....	229,302,000
Raw materials:	
a. Domestic.....	775,000
b. Imported.....	209,459,000
Unmanufactured fuels and purchased energy.....	19,068,000
Cost of semimanufactured materials and manufactured fuels, total.....	349,376,000
Semimanufactured materials:	
a. Domestic.....	348,340,000
b. Imported.....	426,000
Manufactured fuels.....	610,000
Net value of products.....	768,511,000
Per cent of gross value.....	68.8

RAW MATERIALS OF DOMESTIC ORIGIN

Kind	Cost
Mineral materials (sulphur ore) ¹	\$776,000

RAW MATERIALS OF FOREIGN ORIGIN

Kind	Cost
Rubber, crude.....	\$209,459,000

IMPORTED SEMIMANUFACTURED MATERIALS

Kind	Cost
Rubber, reclaimed and scrap.....	\$426,000

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$381,000	Coke.....	\$3,000
Coal, bituminous.....	8,279,000	Fuel oils.....	543,000
Gas, natural.....	167,000	Gas, manufactured.....	33,000
Purchased energy.....	10,241,000	Gasoline and kerosene.....	30,000
		Other fuels.....	1,000

For footnotes, see p. 56.

GROUP IX.—LEATHER AND ITS MANUFACTURES

Gross value of products.....	\$1, 905, 977, 000
Cost of raw materials and unmanufactured fuels, total.....	306, 692, 000
Raw materials:	
<i>a.</i> Domestic.....	145, 934, 000
<i>b.</i> Imported.....	147, 577, 000
Unmanufactured fuels and purchased energy.....	13, 181, 000
Cost of semimanufactured materials and manufactured fuels, total.....	825, 250, 000
Semimanufactured materials:	
<i>a.</i> Domestic.....	774, 926, 000
<i>b.</i> Imported.....	49, 728, 000
Manufactured fuels.....	596, 000
Net value of products.....	1, 130, 454, 000
Per cent of gross value.....	59. 3

RAW MATERIALS OF DOMESTIC ORIGIN

<i>Kind</i>	<i>Cost</i>
Hides and skins, raw ¹	\$145, 934, 000

RAW MATERIALS OF FOREIGN ORIGIN ²

<i>Kind</i>	<i>Cost</i>
Hides and skins, raw.....	\$147, 577, 000

IMPORTED SEMIMANUFACTURED MATERIALS ³

<i>Kind</i>	<i>Cost</i>
Cork products.....	\$1, 500, 000
Leather.....	48, 228, 000

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Anthracite.....	\$485, 000	Coke.....	\$19, 000
Coal, bituminous.....	6, 284, 000	Fuel oils.....	354, 000
Gas, natural.....	38, 000	Gas, manufactured.....	120, 000
Purchased energy.....	6, 373, 000	Gasoline and kerosene.....	14, 000
		Other fuels.....	80, 000

GROUP X.—STONE, CLAY, AND GLASS PRODUCTS

Gross value of products.....	\$1, 561, 415, 000
Cost of raw materials and unmanufactured fuels, total.....	344, 959, 000
Raw materials:	
<i>a.</i> Domestic.....	190, 222, 000
<i>b.</i> Imported.....	15, 923, 000
Unmanufactured fuels and purchased energy.....	138, 814, 000
Cost of semimanufactured materials and manufactured fuels, total.....	181, 381, 000
Semimanufactured materials:	
<i>a.</i> Domestic.....	149, 510, 000
<i>b.</i> Imported.....	13, 154, 000
Manufactured fuels.....	18, 717, 000
Net value of products.....	1, 393, 187, 000
Per cent of gross value.....	89. 2

RAW MATERIALS OF DOMESTIC ORIGIN

<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Mineral materials: ²		Mineral materials—Continued.	
Abrasive materials.....	\$1, 695, 000	Nonclay refractory materials.....	\$11, 700, 000
Asbestos, crude.....	400, 000	Sand and gravel.....	7, 295, 000
Clay.....	45, 501, 000	Sandstone.....	1 5, 628, 000
Earth and minerals, unspecified.....	5, 500, 000	Silica.....	1 4, 835, 000
Feldspar.....	1, 225, 000	Slag.....	55, 000
Fluorspar.....	268, 000	Slate.....	1 2, 522, 000
Granite.....	1 17, 600, 000	Stone:	
Graphite, natural.....	4 238, 000	Crushed.....	1, 947, 000
Gypsum, crude and calcined.....	22, 339, 000	Other.....	1, 261, 000
Limestone.....	1 47, 964, 000	Talc and soapstone.....	1, 800, 000
Magnesite.....	1, 948, 000	Raw fibers (cotton).....	1 1, 000, 000
Marble.....	1 7, 600, 000	Sea materials (shells).....	400, 000

MATERIALS USED IN MANUFACTURES, 1929

RAW MATERIALS OF FOREIGN ORIGIN :

Kind	Cost	Kind	Cost
Mineral materials:		Mineral materials—Continued.	
Abrasive materials.....	\$835,000	Gypsum, crude and calcined.....	\$1,343,000
Asbestos, crude.....	4,659,000	Magnesite, crude and calcined.....	1,585,000
Clay.....	1,452,000	Marble.....	2,670,000
Feldspar.....	255,000	Other nonmetallic minerals.....	542,000
Fluorspar.....	134,000	Slate.....	95,000
Granite.....	672,000	Other stone.....	481,000
Graphite, natural.....	1,200,000		

IMPORTED SEMIMANUFACTURED MATERIALS :

Kind	Cost	Kind	Cost
Abrasives.....	\$3,997,000	Cork products.....	\$1,500,000
Asbestos.....	5,269,000	Other nonmetallic minerals.....	2,388,000

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$3,701,000	Coke.....	\$808,000
Coal, bituminous.....	73,968,000	Fuel oils.....	11,965,000
Gas, natural.....	24,453,000	Gas, manufactured.....	1,913,000
Purchased energy.....	36,692,000	Gasoline and kerosene.....	462,000
		Other fuels.....	3,569,000

GROUP XI.—IRON AND STEEL AND THEIR PRODUCTS, NOT INCLUDING MACHINERY

Gross value of products.....	\$7,137,928,000
Cost of raw materials and unmanufactured fuels, total.....	814,912,000
Raw materials:	
a. Domestic.....	614,502,000
b. Imported.....	33,415,000
Unmanufactured fuels and purchased energy.....	166,995,000
Cost of semimanufactured materials and manufactured fuels, total.....	3,047,961,000
Semimanufactured materials:	
a. Domestic.....	2,639,600,000
b. Imported.....	112,228,000
Manufactured fuels.....	296,133,000
Net value of products.....	4,202,195,000
Per cent of gross value.....	58.9

RAW MATERIALS OF DOMESTIC ORIGIN

Kind	Cost	Kind	Cost
Mineral materials:		Mineral materials ² —Continued.	
Fluorspar.....	\$2,200,000	Limestone.....	\$32,769,000
Iron ore.....	345,438,000	Scrap iron.....	234,095,000

RAW MATERIALS OF FOREIGN ORIGIN :

Kind	Cost	Kind	Cost
Mineral materials:		Mineral materials—Continued.	
Diamonds, industrial.....	\$4,373,000	Iron ore.....	\$8,145,000
Ferro-alloying ores.....	3,815,000	Manganese ore.....	16,414,000
Fluorspar.....	668,000		

IMPORTED SEMIMANUFACTURED MATERIALS :

Kind	Cost	Kind	Cost
Iron and steel.....	\$20,680,000	Tin.....	\$79,377,000
Metals, ferro-alloying.....	12,171,000		

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$2,554,000	Coke.....	\$198,158,000
Coal, bituminous.....	\$7,159,000	Fuel oils.....	47,016,000
Gas, natural.....	20,014,000	Gas, manufactured.....	47,798,000
Purchased energy.....	57,268,000	Gasoline and kerosene.....	555,000
		Other fuels.....	2,696,000

For footnotes, see p. 56.

GROUP XII.—NONFERROUS METALS AND THEIR PRODUCTS

Gross value of products.....	\$3, 597, 058, 000
Cost of raw materials and unmanufactured fuels, total.....	620, 474, 000
Raw materials:	
a. Domestic.....	519, 506, 000
b. Imported.....	57, 465, 000
Unmanufactured fuels and purchased energy.....	43, 503, 000
Cost of semimanufactured materials and manufactured fuels, total.....	1, 844, 970, 000
Semimanufactured materials:	
a. Domestic.....	1, 575, 856, 000
b. Imported.....	247, 832, 000
Manufactured fuels.....	21, 282, 000
Net value of products.....	1, 999, 920, 000
Per cent of gross value.....	55. 6

RAW MATERIALS OF DOMESTIC ORIGIN

Kind	Cost	Kind	Cost
Mineral materials: ²		Mineral materials—Continued.	
Copper ore.....	⁴ \$283, 517, 000	Scrap, nonferrous ore.....	⁴ \$80, 000, 000
Gold, new.....	¹³ 24, 870, 000	Silver, new.....	¹³ 14, 000, 000
Lead ore.....	⁴ 67, 563, 000	Tungsten ore.....	⁴ 650, 000
Nonferrous ores.....	3, 750, 000	Zinc ore.....	⁴ 45, 156, 000

RAW MATERIALS OF FOREIGN ORIGIN ¹

Kind	Cost	Kind	Cost
Mineral materials:		Mineral materials—Continued.	
Antimony ore.....	\$248, 000	Nonferrous ores and concentrates....	\$5, 000, 000
Bauxite.....	2, 295, 000	Ores, metals, alloys, not specified....	896, 000
Copper ore, concentrates and regulus.....	25, 325, 000	Platinum metal.....	4, 847, 000
Gold and silver sweepings.....	311, 000	Tin ores.....	72, 000
Lead and bullion.....	13, 917, 000	Zinc ores.....	2, 183, 000
Nickel ore and matte.....	2, 281, 000		

IMPORTED SEMIMANUFACTURED MATERIALS ⁵

Kind	Cost	Kind	Cost
Aluminum.....	\$12, 129, 000	Lead.....	\$2, 097, 000
Antimony.....	2, 506, 000	Miscellaneous metals.....	2, 170, 000
Brass.....	1, 365, 000	Nickel.....	20, 353, 000
Brnze.....	1, 573, 000	Platinum and platinum metals.....	4, 955, 000
Clock and clock movements.....	5, 034, 000	Stones, precious.....	24, 000, 000
Cobalt.....	1, 930, 000	Tin in bars, blocks.....	25, 376, 000
Copper.....	139, 684, 000	Zinc.....	155, 000
Jewelry, semimanufactured.....	1, 500, 000		

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$4, 268, 000	Coke.....	\$5, 938, 000
Coal, bituminous.....	13, 767, 000	Fuel oils.....	12, 395, 000
Gas, natural.....	4, 099, 000	Gas, manufactured.....	2, 185, 000
Purchased energy.....	21, 369, 000	Gasoline and kerosene.....	260, 000
		Other fuels.....	503, 000

For footnotes, see p. 56.

GROUP XIII.—MACHINERY, NOT INCLUDING TRANSPORTATION EQUIPMENT

Gross value of products	\$7, 043, 380, 000
Cost of raw materials and unmanufactured fuels, total	127, 621, 000
Raw materials:	
<i>a.</i> Domestic	46, 407, 000
<i>b.</i> Imported	3, 101, 000
Unmanufactured fuels and purchased energy	78, 113, 000
Cost of semimanufactured materials and manufactured fuels, total	2, 566, 759, 000
Semimanufactured materials:	
<i>a.</i> Domestic	2, 530, 007, 000
<i>b.</i> Imported	4, 569, 000
Manufactured fuels	32, 183, 000
Net value of products	4, 481, 190, 000
Per cent of gross value	63. 6

RAW MATERIALS OF DOMESTIC ORIGIN

<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Mineral materials: ²		Mineral materials—Continued.	
Mercury, crude	\$195, 000	Scrap, old iron and steel	\$45, 690, 000
Mica	522, 000		

RAW MATERIALS OF FOREIGN ORIGIN³

<i>Kind</i>	<i>Cost</i>
Mercury, crude	\$112, 000
Mica	2, 989, 000

IMPORTED SEMIMANUFACTURED MATERIALS⁴

<i>Kind</i>	<i>Cost</i>
Carbon products	\$401, 000
Cork products	2, 000, 000
Machinery parts	2, 168, 000

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Anthracite	\$2, 062, 000	Coke	\$14, 972, 000
Coal, bituminous	24, 745, 000	Fuel oils	9, 123, 000
Gas, natural	3, 798, 000	Gas, manufactured	5, 276, 000
Purchased energy	47, 508, 000	Gasoline and kerosene	1, 450, 000
		Other fuels	1, 362, 000

GROUP XIV.—TRANSPORTATION EQUIPMENT, AIR, LAND, AND WATER

Gross value of products	\$6, 047, 209, 000
Cost of raw materials and unmanufactured fuels, total	44, 934, 000
Raw materials:	
<i>a.</i> Domestic	3, 781, 000
<i>b.</i> Imported	
Unmanufactured fuels and purchased energy	41, 153, 000
Cost of semimanufactured materials and manufactured fuels, total	3, 638, 214, 000
Semimanufactured materials:	
<i>a.</i> Domestic	3, 625, 410, 000
<i>b.</i> Imported	
Manufactured fuels	12, 804, 000
Net value of products	2, 408, 996, 000
Per cent of gross value	39. 8

For footnotes, see p. 56.

RAW MATERIALS OF DOMESTIC ORIGIN

Kind		Cost
Mineral materials:		
Scrap iron.....		\$3,781,000

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$443,000	Coke.....	\$1,272,000
Coal, bituminous.....	14,879,000	Fuel oils.....	6,290,000
Gas, natural.....	1,135,000	Gas, manufactured.....	2,838,000
Purchased energy.....	24,696,000	Gasoline and kerosene.....	2,174,000
		Other fuels.....	230,000

GROUP XV.—RAILROAD REPAIR SHOPS

Gross value of products.....	\$1,269,917,000
Cost of raw materials and unmanufactured fuels, total.....	26,679,000
Raw materials:	
a. Domestic.....	(14)
b. Imported.....	(14)
Unmanufactured fuels and purchased energy.....	26,679,000
Cost of semimanufactured materials and manufactured fuels, total.....	521,665,000
Semimanufactured materials:	
a. Domestic.....	517,160,000
b. Imported.....	(14)
Manufactured fuels.....	4,505,000
Net value of products.....	748,252,000
Per cent of gross value.....	58.9

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
Kind	Cost	Kind	Cost
Anthracite.....	\$1,302,000	Coke.....	\$151,000
Coal, bituminous.....	14,880,000	Fuel oils.....	4,001,000
Gas, natural.....	1,003,000	Gas, manufactured.....	119,000
Purchased energy.....	9,397,000	Gasoline and kerosene.....	188,000
		Other fuels.....	45,000

GROUP XVI.—MISCELLANEOUS INDUSTRIES

Gross value of products.....	\$3,426,319,000
Cost of raw materials and unmanufactured fuels, total.....	532,464,000
Raw materials:	
a. Domestic.....	311,875,000
b. Imported.....	200,906,000
Unmanufactured fuels and purchased energy.....	19,683,000
Cost of semimanufactured materials and manufactured fuels, total.....	826,897,000
Semimanufactured materials:	
a. Domestic.....	771,766,000
b. Imported.....	51,438,000
Manufactured fuels.....	3,693,000
Net value of products.....	2,650,860,000
Per cent of gross value.....	77.4

RAW MATERIALS OF DOMESTIC ORIGIN

Kind	Cost	Kind	Cost
Agricultural materials: ¹		Forest materials (logs) ¹	\$100,000
Broomcorn.....	\$6,021,000	Mineral materials: ²	
Cotton.....	6,500,000	Asphalt.....	1,200,000
Flowers.....	550,000	Clay and earths.....	4,000,000
Grasses.....	699,000	Graphite.....	150,000
Straw, cubes, etc.....	250,000	Mercury, crude.....	2,000
Tobacco, leaf ³	262,600,000	Sand.....	1,550,000
Animal materials: ⁴		Silver.....	2,500,000
Animal hair.....	3,095,000	Sea materials (shells) ⁴	1,325,000
Bone.....	200,000		
Feathers.....	103,000		
Furs.....	21,000,000		

For footnotes, see p. 56.

MATERIALS USED IN MANUFACTURES, 1929

RAW MATERIALS OF FOREIGN ORIGIN ⁵

<i>Kind</i>	<i>Cost</i>	Mineral materials:	<i>Kind</i>	<i>Cost</i>
Agricultural materials (tobacco).....	\$97,586,000	Chalk.....		\$129,000
Animal materials:		Mercury.....		122,000
Furs, undressed.....	91,928,000	Stones, precious and semiprecious.....		7,400,000
Ivory.....	356,000	Sea materials (shells).....		3,135,000
		Other materials (human hair).....		250,000

IMPORTED SEMIMANUFACTURED MATERIALS ⁵

<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Asbestos.....	\$2,153,000	Mercury.....	\$500,000
Bristles.....	9,423,000	Paper, cigarette, etc.....	8,587,000
Cork.....	1,500,000	Photographic material.....	6,727,000
Feathers, prepared.....	87,000	Pyroxylin materials.....	1,687,000
Furs.....	18,207,000	Vegetable materials, inedible.....	1,836,000
Glass.....	751,000		

FUELS AND PURCHASED ENERGY

UNMANUFACTURED		MANUFACTURED	
<i>Kind</i>	<i>Cost</i>	<i>Kind</i>	<i>Cost</i>
Anthracite.....	\$968,000	Coke.....	\$302,000
Coal, bituminous.....	7,537,000	Fuel oils.....	1,799,000
Gas, natural.....	352,000	Gas, manufactured.....	1,093,000
Purchased energy.....	10,827,000	Gasoline and kerosene.....	177,000
		Other fuels.....	232,000

¹ Quantities reported; costs estimated in part.² Estimated in part from reports of Bureau of Mines.³ Estimated from data on returns for the census for 1931. The water was used in the manufacture of ice.⁴ Estimated in large part.⁵ Estimated in large part from statistics compiled by Bureau of Foreign and Domestic Commerce.⁶ Amount deducted, \$302,059,000, representing the cost of contract work.⁷ Quantities reported; costs based on estimates furnished by Forest Service, Department of Agriculture.⁸ Amount deducted, \$169,899,000, representing the cost of contract work.⁹ Data for bituminous coal which was produced and consumed in the same plants, valued at \$46,008,000, were deducted to avoid duplication in cost of fuel.¹⁰ Data for natural gas which was produced and consumed in the same plants, valued at \$15,728,000, were deducted to avoid duplication in cost of fuel.¹¹ Data for fuel oil which was produced and consumed in the same plants, valued at \$42,398,000, were deducted to avoid duplication in cost of fuel.¹² Data for manufactured gas which was produced and consumed in the same plants, valued at \$3,564,000, were deducted to avoid duplication in cost of fuel.¹³ Estimated in part from data of the Department of the Treasury.¹⁴ No consumption of raw materials or imported semimanufactures reported.

SIXTY-EIGHT RAW-MATERIAL-CONSUMING INDUSTRIES, BY INDUSTRY GROUPS

Food and Kindred Products

Butter.
Canning and preserving: Fish, crabs, shrimps, oysters, and clams.
Canning and preserving: Fruits and vegetables; pickles, jellies, preserves, and sauces.
Cereal preparations.
Cheese.
Chocolate and cocoa products, not including confectionery.
Coffee and spice, roasting and grinding.
Condensed and evaporated milk.
Corn sirup, corn sugar, corn oil, and starch.
Feeds, prepared, for animals and fowls.
Flour and other grain-mill products.
Ice cream.
Malt.
Meat packing, wholesale.
Peanuts, walnuts, and other nuts, processed or shelled.
Poultry killing, dressing, and packing, wholesale.
Rice cleaning and polishing.
Sugar, beet.
Sugar, cane, not including products of refineries.

Textiles and Their Products

Cordage and twine.
Cotton goods.
Felt goods, wool, hair, or jute.
Haircloth.
Hat and cap materials, men's.
Jute goods.
Linen goods.
Mats and matting, grass and coir.
Silk and rayon manufactures.
Upholstering materials, not elsewhere classified.
Woolen goods.

Forest Products

Baskets and rattan and willow ware, not including furniture.
Cork products.
Excelsior.
Turpentine and rosin.

Paper and Allied Products

Pulp (wood and other fiber).

Chemicals and Allied Products

Bone black, carbon black, and lamp-black.
Grease and tallow, not including lubricating greases.
Liquors, vinous.
Oil, cake, and meal, cottonseed.
Oil, cake, and meal, linseed.
Oils, essential.
Oils, not elsewhere classified.
Salt.
Wood distillation and charcoal manufacture.

Products of Petroleum and Coal

Coke, not including gas-house coke.
Gas, manufactured, illuminating and heating.
Petroleum refining.

Leather and Its Manufactures

Leather: Tanned, curried, and finished.

Stone, Clay, and Glass Products

Cement.
Clay products (other than pottery) and nonclay refractories.
Graphite, ground and refined.
Lime.
Marble, granite, slate, and other stone products.

Minerals and earths, ground or otherwise treated.

Pottery, including porcelain ware.

Wall plaster, wall board, insulating board, and floor composition.

Iron and Steel and Their Products, Not Including Machinery

Iron and steel: Blast furnaces.

Nonferrous Metals and Their Products

Silversmithing and silverware.

Smelting and refining, metals other than gold, silver, or platinum, not from the ore.

Smelting and refining, zinc.

Miscellaneous Industries

Brooms.

Cigars and cigarettes.

Foundry supplies.

Fur goods.

Hair work.

Ivory, shell, and bone work, not including buttons, combs, or hairpins.

Lapidary work.

Tobacco: Chewing and smoking, and snuff.

